REMARKS/ARGUMENTS

Reconsideration and continued examination of the above-identified application are respectfully requested.

Claims 36-58 and 61-65 are pending. By way of this amendment, claims 36 and 65 have been amended. These amendments are for clarification purposes. Claims 59 and 60 have been canceled.

Rejection of claims 36-43, 50-56, and 58-61 under 35 U.S.C. §102(b) and §103(a) -- Chang

At page 2 of the Office Action, the Examiner rejects claims 36-43, 50-56, 58-61, and 65 under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being unpatentable over Chang (U.S. Patent No. 5,448,447). The Examiner relies upon the rejection set forth in the October 30, 2006 Office Action. The Examiner relies on one particular sentence in Chang, which allegedly states that the chemical and physical properties of tantalum and niobium are known by those skilled in the art to be sufficiently similar to permit substitution of either metal. The Examiner does admit that Chang does not recite any examples using niobium, but still alleges that the substitution of niobium for tantalum would be obvious. Further, the Examiner asserts that the particular test conditions used to determine capacitance in claim 36 are process limitations. Also, with respect to claim 65, the Examiner relies on the previous positions taken by the Examiner in the October 30, 2006 Office Action regarding claim 36. The Examiner states that although Chang does not recite that an electrode is formed by sintering at a temperature of 1100° C and anodized using a formation voltage of 35 Vf, the Examiner asserts that a capacitance of at least 65,000 CV/g and a DC leakage of less than 5.0 nA/CV would be expected from the powder of Chang "since Chang discloses the use of niobium capacitor powder for low leakage capacitors."

Further, the Examiner takes the position at pages 5-9 of the final Office Action that the

previous arguments and declaration evidence submitted are insufficient to overcome any of the prior art rejections for a variety of reasons. This rejection is respectfully traversed in its entirety.

To avoid duplicating the same arguments previously presented, these arguments and evidence including the response filed April 30, 2007, are incorporated in their entirety by reference herein.

Claim 36 of the present application recites a niobium powder, which is characterized by sintering the niobium powder at a temperature of 1100° C for 10 minutes and anodized using a formation voltage of 20 Vf at 60° C, and which has a capacitance of at least 65,000 CV/g and a DC leakage of less than 5.0 nA/CV. The remaining claims (except claim 65) are directly or indirectly dependent on claim 36.

The following additional comments are presented for purposes of addressing the Examiner's rejection in view of Chang.

A. The Examiner continues to take the position that it would be obvious to substitute niobium for tantalum in view of a single sentence in Chang. However, col. 3, lines 1-10 of Chang states that sintering is between 1400° C to 1800° C and the anodization voltage is 100 volts or greater. The highest reported capacitance in Chang is about 25,000 CV/g. If Chang literally teaches a sinter temperature lower than 1400° C, an anodization voltage of lower than 100 volts, or a capacitance of greater than 25,000 CV/g, the Examiner is respectfully requested to identify by column and line number in Chang where such a teaching exists or even such a suggestion. It is respectfully submitted that Chang clearly does not provide such parameters. Certainly, no identification in Chang with regard to these parameters have been identified by the Examiner in any Office Action. It is clear that Chang does not suggest any lower sintering temperature, nor does Chang suggest any lower anodization voltage, nor does Chang suggest any capacitance above

25,000 CV/g. One skilled in the art would understand this to mean that the powder of Chang is not sinterable at below 1400° C, that the powder cannot be anodized at a voltage of less than 100 volts, or that the material is capable of having a capacitance above 25,000 CV/g. Certainly, Chang would provide no motivation to even try these parameters. A reference is viewed by one skilled in the art and what teachings or suggestions are presented as a whole in the reference. Clearly, Chang, when read in its entirety, does not provide any such suggestions with regard to any metal powder that is capable of being subjected to a lower sinter temperature or lower anodization formation voltage, or being capable of achieving a higher capacitance other than identified above. Further, there is no teaching or suggestion in Chang to the leakage recited in the present claims.

Contrary to the teachings and suggestions of Chang, the present niobium powder is capable of being sintered at a temperature of 1100° C and is capable of being anodized using a formation voltage of, for instance, 20 Vf and has a capacitance of at least 65,000 CV/g and further has a DC leakage of less than 5.0 nA/CV. These differences alone clearly show that Chang does not teach or suggest the claimed invention.

B. Does Chang really show the interchangeability of tantalum for niobium? The Examiner, in the Office Action, can only point to one statement in Chang which is a particular sentence found in Chang at col. 3, lines 64-68. While a teaching does not require more than one sentence, the following is pointed out. There is absolutely no data regarding niobium powder in Chang. No electrical anode data, no niobium powder physical properties, and no chemical data regarding the niobium powder are set forth in Chang. If Chang specifically provides data regarding niobium powder or anode properties resulting from niobium powder, the Examiner is respectfully requested to identify by column and line number where such information exists in Chang. Further, no experimental data is provided in Chang regarding the making of niobium powder, the processing of

niobium powder, the formation of niobium powder into an anode, or test results. Again, if such an explanation or experimental data exists in Chang, the Examiner is respectfully requested to identify by column and line number where in Chang such information exists.

While the Examiner has consistently taken the position that the tantalum information provided in Chang applies to niobium, Chang does not provide any evidence to show that such a substitution is feasible and has provided no experimental data showing that this statement is proven true. It is respectfully noted that the Examiner, in several locations, has characterized the Declaration evidence submitted by the applicant as "conclusory," and then has discounted this evidence as insufficient to overcome any rejection. However, such a position by the Examiner would actually apply to Chang, which provides a single sentence which is "conclusory," and does not provide any data to substantiate such a statement. Chang's one-sentence statement is non-enabling, does not provide a written description of niobium and does not provide any teaching or suggestion on the niobium powders of the present invention. Further, in a Declaration submitted by the applicant, by Heather Enman, a person well experienced in working with niobium powders and involved in the research and development of niobium powders at Cabot Corporation, specifically stated that the niobium will not anodize at 100 volts (formation voltage). The Examiner disregarded this statement as conclusory; however, this statement was based on experiments and experience in working with niobium, whereas the Examiner has pointed to no evidence in Chang to contradict such a statement. Further, Chang teaches a formation voltage of 100 Vf or higher and not less. Thus, there is no teaching to use a lower formation voltage in Chang and there is no niobium data in Chang. Clearly, the applicants have provided evidence that would put the burden on the U.S. Patent and Trademark Office to show otherwise.

C. The Examiner, in the Office Action, takes the position that Chang discloses the use of

niobium capacitor powder for low leakage capacitors. However, if Chang discloses low leakage, the Examiner is respectfully requested to identify by column and line number the leakage parameters disclosed in Chang. In particular, claim 36 of the present application recites a DC leakage of less than 5.0 nA/CV. If Chang discloses such a DC leakage value or any DC leakage value, the Examiner is respectfully requested to assist the applicant and identify by column and line number where such a teaching exists in Chang. Furthermore, the applicant notes that in Fig. 1 of Chang, this figure would suggest to one skilled in the art that lower formation voltage (of even 100 volts) leads to higher leakage. Fig. 1 of Chang plots a percentage reduction in leakage versus a formation voltage. In Fig. 1, the lowest formation voltage shown is 100 volts and nothing less. Second, it is clear from Fig. 1 that as the formation voltage is decreased from 400 volts to 100 volts, the percent reduction in leakage decreases as well. In other words, the amount of leakage is increasing as the formation voltage is dropping. Thus, contrary to the positions taken by the Examiner in rejecting these claims, Chang actually teaches that leakage will increase dramatically as formation voltage drops and, therefore, the powders of Chang actually teach away from being incapable of a lower formation voltage and yet obtaining satisfactory DC leakage and capacitance.

D. In Chang, at col. 6, lines 13-18, Chang refers to a synergistic effect of reacting quantities of nitrogen and oxygen with base material which results in a more stable dielectric layer of tantalum pentoxide. This particular paragraph at col. 6 further states the effect of various impurities with tantalum or tantalum oxide. Thus, Chang specifically teaches a synergistic effect with oxygen, nitrogen, and tantalum, but makes no mention whatsoever of niobium. Again, this is further evidence that Chang had an understanding to some extent of tantalum, but had no understanding and no data to gain an understanding of niobium and its effects.

E. Though mentioned before, it is respectfully noted that the tantalum material used in

Chang has a BET of less 0.6 m^2/g, and preferably a lower BET surface area, namely 0.25 to 0.55 m^2/g. See col. 5, lines 1-3 of Chang. Thus, even if a substitution is feasible, which the applicant maintains it is not, Chang would only be using a BET surface area of less than 0.6 m^2/g. Through the Declaration evidence previously presented by the applicant, it was shown that a niobium powder having a BET of about 0.55 m^2/g to 0.58 m^2/g would not have a capacitance of greater than 65,000 CV/g at a sintering temperature of 1300° C or even 1100° C based on acceptable extrapolation practice. The Examiner questioned how this extrapolation is acceptable. First, in the Declaration, a person skilled in the art having many years of experience in tantalum and niobium research and development has stated that this is an acceptable practice. The Examiner has provided no other evidence to contradict such a statement. Furthermore, attached to this response is a brochure from a competitor of the applicant, Starck, where it can be shown that the relationship for capacitance and sintering temperature is generally accepted as a linear relationship (for instance, see the graph for PL-8000). This is further evidence to show that the extrapolations made in the Declarations by Heather Enman are acceptable and are common practice in the industry. The Examiner is respectfully requested to consider the Starck information that is attached.

Accordingly, for the reasons presented previously, which are incorporated in their entirety by reference herein, as well as the above comments, this rejection should be withdrawn.

Rejection of claims 48, 49, 52, 57, and 62-64 under 35 U.S.C. §103(a) – Chang

At page 3 of the Office Action, the Examiner then rejects claims 48, 49, 52, 57, and 62-64 under 35 U.S.C. §103(a) as being unpatentable over Chang, essentially for the same reasons as applied above in rejecting claim 36. The Examiner asserts that with respect to claims 48 and 49, Chang teaches the oxygen content recited in the claims. This rejection is respectfully traversed.

For the reasons set forth above, this rejection should also be withdrawn. To avoid repeating the same arguments, the applicants rely upon the evidence and comments set forth above. It is noted that these claims are dependent ultimately on claim 36 and, therefore, recite a niobium powder having certain electrical characteristics in addition to the various limitations set forth in the rejected dependent claims. As stated, Chang does not teach or even suggest a niobium powder having the characteristics set forth in the claims, and the Examiner's proposed substitution argument regarding tantalum and niobium has been addressed above. Accordingly, this rejection should be withdrawn.

Rejection of claims 36-47 and 49-65 under 35 U.S.C. §103(a) -- WO 98/37248 in view of Chang

At the bottom of page 3 of the Office Action, the Examiner rejects claims 36-47 and 49-65 under 35 U.S.C. §103(a) as being unpatentable over WO 98/37248 in view of Chang. The Examiner essentially relies on Chang for the reasons set forth above. The Examiner asserts that WO '248 shows tantalum powder having a particular capacitance. The Examiner does acknowledge that WO '248 does not teach or suggest that the powder is niobium, but the Examiner asserts that it would be obvious to use niobium in the sintered anodized powder electrodes disclosed by WO '248. This rejection is respectfully traversed.

The comments regarding Chang above apply equally here to this rejection. WO '248 strictly relates to tantalum and makes absolutely no suggestion regarding niobium powder. All of the data, all of the examples, all of the test methods, and the electrical properties only relate to tantalum powder and not niobium powder. The Examiner has essentially taken the position that it would be obvious to take these electrical properties for a completely different powder and routinely obtain

these properties for niobium powder in Chang, even though Chang does not specifically describe any niobium examples, and Chang does not describe any niobium characteristics, and only makes a passing reference to niobium powder having similar chemical and physical properties. Chang does not state that electrical characteristics are interchangeable with the two powders, nor does WO '248. Therefore, the Examiner's proposed substitution of electrical properties is not supported in any of the cited art relied upon by the Examiner.

Moreover, Chang specifically describes powders below 0.6 m^2/g for purposes of all of the information set forth in Chang. Even if the Examiner's proposed substitution argument is acceptable, which the applicants respectfully disagree with, Chang presents this information with respect to low surface area tantalum powder, namely below 0.6 m^2/g. It is respectfully noted that the BET surface area of the powder set forth in WO '248 ranges from 1.5 to 10 m^2/g and most preferably 3 to 6 m^2/g, a difference in size of almost 300% compared to Chang. Therefore, the powder described in Chang, even with respect to the tantalum in WO '248, at least with respect to surface area, is completely different.

One skilled in niobium powder would not look to the alleged high capacitance tantalum powder set forth in WO '248 to develop niobium powders. As shown in the Declaration evidence submitted with this response, as well as the previous evidence, the type of powder set forth in Chang simply would not achieve the capacitance set forth in the present claims.

Accordingly, for the reasons presented previously of record, and set forth herein, this rejection should be withdrawn.

With regard to the Examiner's comment at page 4 of the Office Action that one skilled in the art would expect the properties of niobium powder processed by the method disclosed in WO '248 to possess the same or similar characteristics as tantalum powder, the applicant disagrees. The

Declaration evidence submitted by the applicant clearly states that niobium is not capable of being formed at a formation voltage of 100 volts. Thus, if tantalum and niobium are the same materials, then why is niobium not capable of being formed at a formation voltage of 100 volts? The Declaration evidence submitted in the most recent Office Action, including the Declaration of Jonathon L. Kimmel, was submitted for this purpose. In the Office Action, the Examiner indicated that the Declaration is for a different application. To address the Examiner's comment, the Declaration evidence of Jonathon L. Kimmel was submitted in an earlier application, but the Examiner's comment regarding this fact is not understood. The Declaration evidence is relevant to the present application as well and that it is why it was submitted in this application as well. Further, the Declaration evidence cannot be discounted for that reason. Further, the Examiner appears to entirely discount the evidence of Jonathon L. Kimmel for only one reason, which is the single sentence in Chang, but has provided no evidence whatsoever that niobium and tantalum are substitutes for each other. Again, if the Examiner has specific data in Chang that supports this conclusory statement by the Examiner, the applicant is respectfully requesting that the Examiner identify by column and line number where such evidence exists.

With respect to the Examiner's reliance on additional references at the bottom of page 7 of the Office Action, none of the references were relied upon in any rejection of the claims. The applicant does, however, point out that the reference to WO 98/37248 mentions only tantalum and does not at all relate to niobium, and so the Examiner's reference to this PCT application is not understood.

Furthermore, at item 6 on page 8 of the Office Action, the Examiner asserts that the "powder disclosed in the prior art" must be tested at these conditions. For purposes of this statement, the applicant would like to know exactly what "powder" is disclosed in the prior art and,

most specifically, Chang, that would be tested. In order for a test to be made with the prior art, the powder must be disclosed and enabled so that the powder can be adequately reproduced and tested. Therefore, the applicant asks the question: Exactly what niobium powder is disclosed in Chang and how was it made and what properties did it have so that the applicant can adequately prepare such a sample? In the absence of such information, no reproduction can be made.

Finally, the Examiner makes the statement "[c]onclusory statements are then made regarding the possible results if tantalum were formed using this temperature and voltage, however, conclusory statements do not take the place of evidence." It appears that the Examiner may have meant niobium instead of the term "tantalum." Clarification is needed. However, the applicant has not provided conclusory statements, but have provided concrete evidence showing the properties of niobium and the failure of Chang to teach or suggest the particular powder claimed in the present application. The applicant believes that only conclusory statements have been relied upon in making this rejection and no evidence with regard to niobium powder has been identified in any of the prior art relied upon in these rejections.

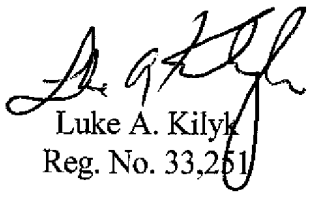
For these reasons, these rejections should be withdrawn.

CONCLUSION

In view of the foregoing remarks, the applicants respectfully request reconsideration of this application and the timely allowance of the pending claims.

If there are any fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 03-0060. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,



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